

## REMARKS

In accordance with the foregoing, the specification and claim 11 has been amended, and new claims 22-25 have been added. Claims 1-16 and 18-25 are pending, with claims 1, 11, and 21 being independent. Claims 1-16 and 18-21 are under consideration as being generic. New claims 22-25 are generic. No new matter is presented in this Amendment.

### Applicant's Statement of Substance of Interview

The Interview Summary mailed on June 26, 2007, for the telephone interview of June 14, 2007, is acknowledged. The applicant's statement of the substance of the interview required by the Interview Summary pursuant to MPEP 713.04 has already been provided on pages 14-16 of the Amendment After Final Rejection of June 20, 2007.

The Examiner-Initiated Interview Summary mailed on June 26, 2007, for the telephone interview conducted on June 22, 2007, is acknowledged. The Examiner-Initiated Interview Summary indicates that it is not necessary for the applicant to provide a separate record of the interview.

### Allowable Subject Matter

Claim 21 has been allowed.

Claims 5, 6, and 8-10 have been objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. However, it is submitted that rejected base claim 1 from which claims 5, 6, and 8-10 directly or indirectly depend is now allowable, and it is respectfully requested that the objection to claims 5, 6, and 8-10 be withdrawn and that claims 5, 6, and 8-10 be allowed.

### Claim Rejections Under 35 USC 112

Claims 7 and 12 have been rejected under 35 USC 112, first paragraph, as failing to comply with the enablement requirement.

Claims 7 and 12 have been rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that the applicant regards as the invention.

The rejections of claims 7 and 12 under 35 USC 112, first and second paragraphs, are respectfully traversed.

Submitted herewith is a Declaration Under 37 CFR 1.132 by Mu-Hyun Kim. Paragraphs 1 and 2 of the Declaration describe Mr. Kim's educational background, professional experience, and knowledge of the state of the art. Paragraph 3 of the Declaration states that Mr. Kim is an employee of Samsung SDI Co., Ltd., the assignee of the present application. Paragraph 4 of the Declaration states that Mr. Kim is one of the inventors of copending Application No. 10/839,338 relied on by the Examiner in the nonstatutory obviousness-type double patenting rejection of claims 1-4 in the Office Action of June 29, 2007, issued in the present application. Paragraph 5 of the Declaration states that the present application was filed on January 15, 2004, and claims the benefit of Korean Patent Application No. 2003-6617 filed on February 3, 2003 (the Korean priority application of the present application). Paragraph 6 of the Declaration states that the subject matter of the present application is in the field of electroluminescent devices. Paragraph 7 of the Declaration states that Mr. Kim has reviewed and understood the present application and the rejections of claims 7 and 12 under 35 USC 112, first and second paragraphs, in the Office Action of June 29, 2007, issued in the present application.

Paragraph 8 of the Declaration states that In the Office Action of June 29, 2007, issued in the present application, the Examiner has rejected claims 7 and 12 under 35 USC 112, first paragraph, as failing to comply with the enablement requirement, stating as follows in explaining the rejection:

The claim(s) contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The subject matter of claims 7 and 12 including variables "R", "R<sub>2</sub>" and "R<sub>3</sub>" is not described in the specification in such a way that one of ordinary skill in the art could make or use a compound having these undefined and non-described variables.

Paragraph 9 of the Declaration states that in the Office Action of June 29, 2007, issued in the present application, the Examiner has rejected claims 7 and 12 under 35 USC 112, second

paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention, stating as follows in explaining the rejection:

Claims 7 and 12 recite formulas comprising variables "R", "R<sub>2</sub>" and "R<sub>3</sub>". The variables are undefined and therefore considered indefinite.

Paragraph 10 of the Declaration states that the terms R, R<sub>2</sub>, and R<sub>3</sub> referred to by the Examiner appear in original paragraph [0036] of the specification of the present application, which reads as follows:

**[0036]** The electron donor material is one of an aromatic, an olefin, an allene, a thiophene and a fulvalene heterocyclic compound containing hydrogen, an alkyl group, a phenyl group, an NR<sub>2</sub> group, an OR group and a SiR<sub>3</sub> group, or one or more electron donor materials selected from the group consisting of poly(3,4-ethylene-dioxythiophene), tetraphenylethylene, azulene, 1,2,3,4-tetraphenyl-1,3-cyclopentadiene, and bis(ethylenedithio)tetrathiafulvalene.

Paragraph 11 of the Declaration states that the terms R, R<sub>2</sub>, and R<sub>3</sub> referred to by the Examiner also appear in the original and current versions of claims 7 and 12 of the present application, and that the current versions of claims 7 and 12 recite the following feature:

wherein the electron donor material is selected from the group consisting of:

an aromatic compound having hydrogen, an alkyl group, a phenyl group, an NR<sub>2</sub> group, an OR group, or an SiR<sub>3</sub> group;

an olefin compound having hydrogen, an alkyl group, a phenyl group, an NR<sub>2</sub> group, an OR group, or an SiR<sub>3</sub> group;

an allene compound having hydrogen, an alkyl group, a phenyl group, an NR<sub>2</sub> group, an OR group, or an SiR<sub>3</sub> group;

a thiophene compound having hydrogen, an alkyl group, a phenyl group, an NR<sub>2</sub> group, an OR group, or an SiR<sub>3</sub> group;

a fulvalene heterocyclic compound having hydrogen, an alkyl group, a phenyl group, an NR<sub>2</sub> group, an OR group, or an SiR<sub>3</sub> group;

poly(3,4-ethylene-dioxythiophene);

tetraphenylethylene;

azulene;

1,2,3,4-tetraphenyl-1,3-cyclopentadiene; and

bis(ethylenedithio)tetrathiafulvalene.

Paragraph 12 of the Declaration states that at the time the Korean priority application of the present application was filed on February 3, 2003, one of ordinary skill in the art in the field of organic electroluminescent devices would have understood that the term R is a standard notation in the field of organic chemistry that stands for any organic radical.

Paragraph 13 of the Declaration states that at the time the Korean priority application of the present application was filed on February 3, 2003, one of ordinary skill in the art in the field of organic electroluminescent devices, upon reviewing the present application, would have understood that the term OR in claims 7 and 12 stands for an organic group constituted by an O atom having any organic radical R bonded thereto.

Paragraph 14 of the Declaration states that at the time the Korean priority application of the present application was filed on February 3, 2003, one of ordinary skill in the art in the field of organic electroluminescent devices, upon reviewing the present application, would have understood that the term  $NR_2$  in claims 7 and 12 stands for an organic group constituted by an N atom having any two organic radicals R bonded thereto, where the two organic radicals can be the same R, or two different Rs.

Paragraph 15 of the Declaration states that at the time the Korean priority application of the present application was filed on February 3, 2003, one of ordinary skill in the art in the field of organic electroluminescent devices, upon reviewing the present application, would have understood that the term  $SiR_3$  in claims 7 and 12 stands for an organic group constituted by an Si atom having any three organic radicals R bonded thereto, where the three organic radicals can be the same R, or two of the three organic radicals can be the same R and the other organic radical can be a different R, or the three organic radicals can be three different Rs.

Paragraph 16 of the Declaration states that at the time the Korean priority application of the present application was filed on February 3, 2003, one of ordinary skill in the art in the field of organic electroluminescent devices would have known how to determine whether any particular aromatic compound having an  $NR_2$  group, or an OR group, or an  $SiR_3$  group as recited in claims 7 and 12 is in fact an electron donor material as recited in claims 7 and 12.

Paragraph 17 of the Declaration states that at the time the Korean priority application of the present application was filed on February 3, 2003, one of ordinary skill in the art in the field of

organic electroluminescent devices would have known how to determine whether any particular olefin compound having an  $\text{NR}_2$  group, or an OR group, or an  $\text{SiR}_3$  group as recited in claims 7 and 12 is in fact an electron donor material as recited in claims 7 and 12.

Paragraph 18 of the Declaration states that at the time the Korean priority application of the present application was filed on February 3, 2003, one of ordinary skill in the art in the field of organic electroluminescent devices would have known how to determine whether any particular allene compound having an  $\text{NR}_2$  group, or an OR group, or an  $\text{SiR}_3$  group as recited in claims 7 and 12 is in fact an electron donor material as recited in claims 7 and 12.

Paragraph 19 of the Declaration states that at the time the Korean priority application of the present application was filed on February 3, 2003, one of ordinary skill in the art in the field of organic electroluminescent devices would have known how to determine whether any particular thiophene compound having an  $\text{NR}_2$  group, or an OR group, or an  $\text{SiR}_3$  group as recited in claims 7 and 12 is in fact an electron donor material as recited in claims 7 and 12.

Paragraph 20 of the Declaration states that at the time the Korean priority application of the present application was filed on February 3, 2003, one of ordinary skill in the art in the field of organic electroluminescent devices would have known how to determine whether any particular fulvalene heterocyclic compound having an  $\text{NR}_2$  group, or an OR group, or an  $\text{SiR}_3$  group as recited in claims 7 and 12 is in fact an electron donor material as recited in claims 7 and 12.

Paragraph 21 of the Declaration contains the statements required by 35 USC 25 and 37 CFR 1.68.

It is submitted that the evidence set forth in the Declaration Under 37 CFR 1.132 by Mu-Hyun Kim establishes that the subject matter of claims 7 and 12 including the terms  $\text{R}$ ,  $\text{R}_2$ , and  $\text{R}_3$  is in fact described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention, such that claims 7 and 12 do in fact comply with the enablement requirement of 35 USC 112, first paragraph.

It is submitted that the evidence set forth in the Declaration Under 37 CFR 1.132 by Mu-Hyun Kim establishes that the meaning of the terms  $\text{R}$ ,  $\text{R}_2$ , and  $\text{R}_3$  in claims 7 and 12 would have been understood by one of ordinary skill in the art in the field of organic electroluminescent devices at the time the Korean priority application of the present application was filed on

February 3, 2003, such that claims 7 and 12 are in fact definite and thus do in fact particularly point out and distinctly claim the subject matter that the applicant regards as the invention as required by 35 USC 112.

For at least the foregoing reasons, it is respectfully requested that the rejections of claims 7 and 12 under 35 USC 112, first and second paragraphs, be withdrawn.

#### Claim Rejections Under 35 USC 103

Claims 11-16 and 18-20 have been rejected under 35 USC 103(a) as being unpatentable over Fujita et al. (Fujita) (EP 1017118 A2). This rejection is respectfully traversed.

It is submitted that Fujita does not disclose or suggest the combination of features "wherein the at least one layer selected from the hole-blocking layer and the electron injection layer comprises an electron donor material" and "wherein the hole-blocking layer directly contacts the emitting layer" now recited in independent claim 11.

In order to show that Fujita discloses or suggests the feature "wherein the at least one layer selected from the hole-blocking layer and the electron injection layer comprises an electron donor material," the Examiner must show that Fujita discloses or suggests (1) a hole-blocking layer that comprises an electron donor material, and/or (2) an electron injection layer that comprises an electron donor material.

It is submitted that Fujita does not disclose or suggest an electron injection layer, and thus necessarily does not disclose or suggest an electron injection layer that comprises an electron donor material.

However, the Examiner considers the electron transporting layer 71 that comprises the donor 27 in FIG. 12 of Fujita to be a hole-blocking layer that comprises an electron donor material because the Examiner is of the opinion that an electron transporting layer inherently has hole-blocking properties as allegedly evidenced by Kobori et al. (Kobori) (U.S. Patent Application Publication 2002/0038867), such that the Examiner considers FIG. 12 of Fujita to disclose or suggest the feature "wherein the at least one layer selected from the hole-blocking layer and the electron injection layer comprises an electron donor material" recited in claim 11.

However, the electron transporting layer 71 that comprises the donor 27 in FIG. 12 of Fujita that the Examiner considers to be a hole-blocking layer that comprises an electron donor material does not directly contact the light emitting layer 52 in FIG. 12 of Fujita, such that FIG. 12 of Fujita does not disclose or suggest the feature "wherein the hole-blocking layer directly contacts the emitting layer" now recited in claim 11. Although the hole-blocking layer 6 in FIG. 12 of Fujita directly contacts the light emitting layer 52, the hole-blocking layer 6 does not comprise an electron donor material. This argument is also applicable to FIGS. 5-11 of Fujita.

The Examiner also considers FIG. 12 of Fujita to disclose the feature "wherein the electron transport layer comprises an electron donor material" recited in dependent claim 18 that depends from claim 11 because the last sentence of paragraph [0092] of Fujita states that the electron transporting layer 71 that comprises the donor 27 in FIG. 12 of Fujita may be a single layer or multilayers. Thus, for example, the Examiner is apparently of the opinion that the electron transporting layer 71 that comprises the donor 27 in FIG. 12 of Fujita can be two electron transporting layers 71 that comprise the donor 27, one of which the Examiner considers to be a hole-blocking layer that comprises an electron donor material, and the other of which the Examiner considers to be an electron transporting layer that comprises an electron donor material, thereby providing the feature "wherein the electron transport layer comprises an electron donor material" recited in claim 18. However, the one electron transporting layer 71 that comprises the donor 27 in FIG. 12 of Fujita that the Examiner considers to be a hole-blocking layer that comprises an electron donor material does not directly contact the light emitting layer 52 in FIG. 12 of Fujita, such that FIG. 12 of Fujita does not disclose or suggest the feature "wherein the hole-blocking layer directly contacts the emitting layer" now recited in claim 11 from which claim 18 depends.

Furthermore, it is submitted that the Examiner cannot take the position that the electron transporting layer 71 that comprises the donor 27 in FIG. 14 of Fujita can be a single layer or multilayers as can the electron transporting layer 71 that comprises the donor 27 in FIG. 12 of Fujita because paragraphs [0006], [0010], and [0017] of Fujita specifically disclose that FIGS. 13 and 14 of Fujita show three-layer structures of the prior art in which the electron transporting layer 71 that comprises the donor 27 in FIG. 14 of Fujita is a single layer.

For at least the foregoing reasons, it is respectfully requested that the rejection of claims 11-16 and 18-20 (i.e., claims 11 and 18 discussed above and claims 12-16 and 19-20 depending

directly or indirectly from claim 11) under 35 USC 103(a) as being unpatentable over Fujita be withdrawn.

#### Double Patenting Rejections

Claims 1-4 have been provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7 and 10 of copending Application No. 10/839,338. This provisional rejection is respectfully traversed.

In explaining the rejection, the Examiner states as follows in pertinent part:

It is noted that a terminal disclaimer was filed over the current application in the US 10/839,338 application; however, the terminal disclaimer was disapproved according to the document dated April 21, 2006, in the US 10/839,338 electronic application file.

The "document dated April 21, 2006, in the US 10/839,338 electronic application file" referred to by the Examiner is entitled "Terminal Disclaimer Approval form used within the USPTO," which presumably was prepared by the Technology Center 1700 paralegal having responsibility for copending Application No. 10/839,338 pursuant to MPEP 1490(IV), and indicates that the terminal disclaimer filed on April 11, 2006, in copending Application No. 10/839,338 has been disapproved because "TD cited over US Pat No. instead of Appl. No." However, this statement is incorrect because the terminal disclaimer was actually "cited over" any patent granted on U.S. Patent Application Publication No. 2004/0150330. Furthermore, in the Office Action of June 27, 2006, issued in copending Application No. 10/839,338, the Examiner of copending Application No. 10/839,338 apparently accepted the terminal disclaimer of April 11, 2006, as evidenced by the following statement that appears on page 2 of the Office Action of June 27, 2006, issued in copending Application No. 10/839,338:

The provisional rejection of claims 1-3, 6-7, 9-12, 15 and 17-19 under obviousness-type double patenting as being unpatentable over Suh, U.S. Patent Application 10/757,471 [the present application] is withdrawn due to applicant's submission of the terminal disclaimer.

However, the Examiner of copending Application No. 10/839,338 later withdrew her apparent acceptance of the terminal disclaimer of April 11, 2006, as indicated by the following statement that appears on page 2 of the Office Action of August 2, 2007, issued in copending



Application No. 10/839,338, which was issued after the Office Action of June 29, 2007, was issued in the present application:

The terminal disclaimer submitted by applicant April 11, 2006 was not approved because applicant cited a patent number rather than the application number that was cited in the rejection dated January 12, 2006.

In any event, it is submitted that this point is now moot because a replacement terminal disclaimer was filed on July 23, 2007, in copending Application No. 10/839,338 disclaiming the terminal part of the statutory term of any patent granted on copending Application No. 10/839,338 that would extend beyond the expiration date of the full statutory term as defined in 35 USC 154 and 173 of any patent granted on pending Application No. 10/757,471 filed on January 15, 2004 (i.e., the present application). The Examiner of copending Application No. 10/839,338 was apparently unaware that the terminal disclaimer of July 23, 2007, had been filed when she issued the Office Action of August 2, 2007, in copending Application No. 10/839,338.

For at least the foregoing reasons, it is respectfully requested that the provisional rejection of claims 1-4 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-7 and 10 of copending Application No. 10/839,338 be withdrawn.

#### Patentability of New Dependent Claims 22-25

It is submitted that Fujita does not disclose or suggest the feature "wherein the electron transport layer does not comprise an electron donor material" recited in new dependent claim 22, or the feature "wherein the electron transport layer is a single electron transport layer that is the only electron transport layer in the organic electroluminescent device" recited in new dependent claim 23, or the feature "wherein one side of the single electron transport layer directly contacts the second electrode, and an opposite side of the single electron transport layer directly contacts the hole-blocking layer" recited in new dependent claim 24, or the feature "wherein the hole-blocking layer is a single hole-blocking layer that is the only hole-blocking layer in the organic electroluminescent device" recited in new dependent claim 25.

For at least the foregoing reasons, it is submitted that new claims 22-25 are patentable over Fujita, and it is respectfully requested that new claims 22-25 be allowed.

Conclusion

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

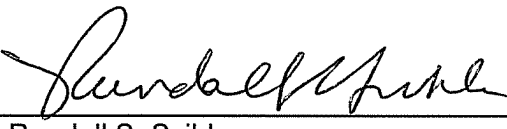
Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this paper, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

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